UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/833,573	04/13/2001	Roger A. Fleming	10010271-1	2603

7590 12/10/2004	EXAMINER
HEWLETT-PACKARD COMPANY	PATEL, ASHOKKUMAR B

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ART UNIT	PAPER NUMBER
2154	

DATE MAILED: 12/10/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

	Application No.	Applicant(s)
Office Action Summary	09/833,573	FLEMING, ROGER A.
	Examiner	**Art Unit**	
	Ashok B. Patel	2154	

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>13 April 2001</u>.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-20</u> is/are pending in the application.

　　4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1-20</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

　　Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

　　Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

　　a)☐ All   b)☐ Some * c)☐ None of:

　　　1.☐ Certified copies of the priority documents have been received.

　　　2.☐ Certified copies of the priority documents have been received in Application No. _____.

　　　3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

　　* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
　　Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
　　Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

DETAILED ACTION

1.   Application Number 09/833, 573 was filed on 04/13/2001. Claims 1-20 are

subject to examination.

Specification

2.   The title of the invention is not descriptive. A new title is required that is clearly

indicative of the invention to which the claims are directed. The following title is

suggested: "Adding and Removing Processes in a Single View".

Claim Rejections - 35 USC § 102

3.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4.   Claims 1-3, 6-10, 13-15 and 18-20 are rejected under 35 U.S.C. 102(b) as being

anticipated by Badovinatz et al. (hereinafter Badovinatz) (US 6,016,505).

Referring to claim 1,

The reference teaches a method of performing one or more of adding and removing a

process in a distributed system (col.13, lines 37 through col.15, line 18), said method

comprising steps of:

(1) launching a probationary member in said distributed system (col.13, lines 39-42);

(2) establishing at least one communication path between said probationary member

and at least one other process in said system (col.14, lines 15-16 "SEND JOIN

REQUEST TO GROUP LEADER");

(3) evaluating at least one criterion for promoting said probationary member to a full

member , and (4) performing one of promoting said probationary member to a full

member and eliminating said probationary member based on the evaluation performed

in step (3). (col.14, lines 16-21, "The group leader then performs a prescreening test,

STEP 1216 "PRESCREEN." In particular, the group leader determines whether the

attributes specified by the requesting process are the same as the attributes set by the

first process of the group. If not, then the join request is rejected.", Fig.12, elements

1218-1224)

Referring to claim 2,

The reference teaches the method of claim 1, wherein step (3) further comprises a step

of: determining whether said at least one criterion is satisfied. (Fig.12, element 1216,

element 1218)

Referring to claim 3,

The reference teaches the method of claim 2, wherein said step (4) further comprises

steps of: promoting said probationary member to said full member in response to said at

least one criterion being satisfied; and eliminating said probationary member in

response to said at least one criterion not being satisfied. (Fig. 12, element 1216,

col.14, lines 17-21, "In particular, the group leader determines whether the attributes

specified by the requesting process are the same as the attributes set by the first

process of the group. If not, then the join request is rejected.")

Referring to claims 6 and 7,

The reference teaches the method of claim 1, wherein said probationary member is

replacing a first process in said system and step (4) further comprises a step of:

replacing said first process and promoting said probationary member to said full member in a single view change. (The reference Badovinatz teaches in col. 16, lines 49-51, "For example, when a member joins or leaves the group, the group is driven through a multi-step protocol, as described above. During each voting step, <u>the group members perform local actions to prepare for the new member, or to recover from the loss of the failed member.</u>" (a step of determining whether said probationary member is replacing a member in said system.) The reference also teaches in col. 11, lines 36-40, "Thus, if a request to remove a member due to a failure is proposed at the same time as a request to join and a request to leave, then the request to remove is selected first. Then, the request to join is selected, followed by the request to leave."; and col.15, lines 19-24," Likewise, in one embodiment, the technique for removing a process when the process fails or when the processor executing the process fails, is similar to that technique used to remove a process requesting to leave. However, instead of the process initiating a request to leave, the request is initiated by Group Services." Thus the reference teaches replacing the process and promoting the joining member process occurs before the request to leave is processed. Thus the replacement occurs <u>in a single view change</u> (following the sequence as indicated above, first join and then remove) and thus the reference teaches the method that provides mechanism for maintaining fault tolerance during step of replacing first process and promoting probationary member.)

Referring to claim 8,

The reference teaches the method of claim 7, wherein said at least one criterion is related to context information. (col.14, lines 12-27, "In particular, the group leader determines whether the attributes specified by the requesting process are the same as the attributes set by the first process of the group. If not, then the join request is rejected." Fig.12,element 1204)

Referring to claim 9,

The reference teaches a distributed system including a plurality of processes in communication with each other, said distributed system (Fig.10) comprising: a first host capable of executing a first process of said plurality of processes (Fig.10, processor 1, process X) ; a second host capable of executing a second process of said plurality of processes(Fig.10, processor 2, process X); at least one communication path connecting said first and second host (Fig.10, element 1000) ; wherein said second process is a probationary member evaluated using at least one criterion for promoting said probationary member to a full member; and said probationary member being either promoted to a full member or eliminated based on the evaluation using said at least one criterion for promoting said probationary member to a full member. (col.10, lines 56-67 and col.14, lines 16-21, "The group leader then performs a prescreening test, STEP 1216 "PRESCREEN." In particular, the group leader determines whether the attributes specified by the requesting process are the same as the attributes set by the first process of the group. If not, then the join request is rejected.", Fig.12, elements 1218-1224).

Referring to claim 10,

The reference teaches the distributed system of claim 9, wherein said system is operable to promote said probationary member to said full member in response to said at least one criterion being satisfied; and said system is operable to eliminate said probationary member in response to said at least one criterion not being satisfied. (Fig. 12, element 1216, col.14, lines 17-21, "In particular, the group leader determines whether the attributes specified by the requesting process are the same as the attributes set by the first process of the group. If not, then the join request is rejected.")

Referring to claim 13,

Claim 13 is a claim to computer readable medium on which is embedded a program, the program executing a method of claim 1. Therefore, claim 13 is rejected for the reasons set forth for claim 1.

Referring to claim 14,

Claim 14 is a claim to computer readable medium on which is embedded a program, the program executing a method of claim 2. Therefore, claim 14 is rejected for the reasons set forth for claim 2.

Referring to claim 15,

Claim 15 is a claim to computer readable medium on which is embedded a program, the program executing a method of claim 3. Therefore, claim 15 is rejected for the reasons set forth for claim 3.

Referring to claims 18 and 19,

Claims 18 and 19 are claims to computer readable medium on which is embedded a program, the program executing a method of claims 6 and 7. Therefore, Claims 18 and 19 are rejected for the reasons set forth for claims 6 and 7.

Referring to claim 20,

Claim 20 is a claim to computer readable medium on which is embedded a program, the program executing a method of claim 8. Therefore, claim 20 is rejected for the reasons set forth for claim 8.

Claim Rejections - 35 USC § 103

4.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5.   Claims 4, 5, 11, 12, 16 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Badovinatz et al. (hereinafter Badovinatz) (US 6,016,505) in view of Kidder et al. (US 6, 694, 450 B1)

Referring to claims 4 and 5,

The reference Badovinatz teaches in col.13, lines 5-8, "Additionally, the mechanisms of the present invention mediate changes to the group state value, and guarantee that it remains consistent and reliable, as long as at least one process group member remains."; (Thus the group can only have members whose state is being the group state value which is transferred to the joining member (probationary member)) and

col.16, lines 51-60) (performing a state transfer in response to said probationary member). The reference Badovinatz teaches in col. 16, lines 49-51, "For example, when a member joins or leaves the group, the group is driven through a multi-step protocol, as described above. During each voting step, <u>the group members perform local actions to prepare for the new member, or to recover from the loss of the failed member.</u>" (a step of determining whether said probationary member is replacing a member in said system.) However, the reference fails to teach that the member joining the group is a mirror. The reference Kidder teaches a system of processes that communicate (col.19, lines 29-37) and creation of mirror process and <u>initiating an audit process to synchronize retrieved state with dynamic state of associated other processes.</u> (Abstract). Therefore, it would have been obvious to one having ordinary skill in the art at the time of invention was made to enhance the system of Badovinatz by including the teachings of Kidder wherein the mirror is created and introduced to the group of processes by vote value at each of the one or more synchronization phases to indicate whether the protocol is to proceed to another synchronization phase. The barrier synchronization technique taught by Badovinatz ensures that all members of the group have reached each synchronization point within the protocol before proceeding.

Referring to claims 11 and 12,

The reference Badovinatz teaches in col. 16, lines 49-51, "For example, when a member joins or leaves the group, the group is driven through a multi-step protocol, as described above. During each voting step, <u>the group members perform local actions to prepare for the new member, or to recover from the loss of the failed member.</u>"

(probationary member is replacing a member). The reference also teaches in col. 11, lines 36-40, "Thus, if a request to remove a member due to a failure is proposed at the same time as a request to join and a request to leave, then the request to remove is selected first. Then, the request to join is selected, followed by the request to leave."; and col.15, lines 19-24," Likewise, in one embodiment, the technique for removing a process when the process fails or when the processor executing the process fails, is similar to that technique used to remove a process requesting to leave. However, instead of the process initiating a request to leave, the request is initiated by Group Services." Thus the reference teaches replacing the process and promoting the joining member process occurs before the request to leave is processed. Thus the replacement occurs wherein said fault tolerant unit is operable to maintain fault tolerance (following the sequence as indicated above, first join and then remove) and thus the reference teaches the method that provides mechanism for maintaining fault tolerance during step of replacing the process and promoting probationary member.)

The reference fails to teach the process group as being the group of processes including the mirror processes. The reference Kidder teaches the mirror designs (redundancy designs as well as fault tolerant system) in col.39 line 55 through col.40, line 67). The reference Kidder teaches a system of processes that communicate (col.19, lines 29-37). Thus the references discloses "a third process; and a fourth process; said third and fourth processes being in communication with each of said processes in said system via multiple communication paths; wherein said first, third and fourth processes are a fault tolerant unit in said system; at least two of said first, third

and fourth processes are mirrors." Therefore, it would have been obvious to one having

ordinary skill in the art at the time of invention was made to enhance the system of

Badovinatz by including the teachings of Kidder wherein the mirror is created and

introduced to the group of processes by vote value at each of the one or more

synchronization phases to indicate whether the protocol is to proceed to another

synchronization phase. The barrier synchronization technique taught by Badovinatz

ensures that all members of the group have reached each synchronization point within

the protocol before proceeding.

Referring to claim 16,

Claim 16 is a claim to computer readable medium on which is embedded a program, the

program executing a method of claim 4. Therefore, claim 16 is rejected for the reasons

set forth for claim 4.

Referring to claim 17,

Claim 17 is a claim to computer readable medium on which is embedded a program, the

program executing a method of claim 5. Therefore, claim 17 is rejected for the reasons

set forth for claim 5.

Conclusion

Examiner's note: Examiner has cited particular columns and line numbers in the

references as applied to the claims above for the convenience of the applicant.

Although the specified citations are representative of the teachings of the art and are

applied to the specific limitations within the individual claim, other passages and figures

may apply as well. It is respectfully requested from the applicant in preparing responses,
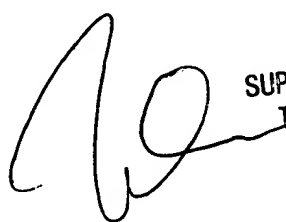
to fully consider the references in entirety as potentially teaching all or part of the claimed invention, as well as the context of the passage as taught by the prior art or disclosed by the Examiner.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ashok B. Patel whose telephone number is (571) 272-3972. The examiner can normally be reached on 8:00am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John A Follansbee can be reached on (571) 272-3964. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Abp
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